

AUSTRALIAN HYMENOPTERA CHALCIDOIDEA—II.

SUPPLEMENT.*

BY A. A. GIRAULT.

THE following additions concerning the Australian fauna have been made.

FAMILY MYMARIDÆ.

OOCTONINI.

GENUS OOCTONUS Haliday.

1. OOCTONUS SAINTPIERREI Girault. Female.

Differs from *australiensis* Perkins in bearing a long abdominal petiole. Congeneric with *Cosmocomoidea morrilli* Howard. Black, the wings without pattern; legs deep orange yellow, also scape; first coxæ black. Longest marginal cilia of fore wing a little less than a third of the greatest width. Funicle joints longer than wide, not very unequal, joints 2, 3, and 5 subequal and longest; joint 1 shortest but longer than the pedicel.

Habitat: Kuranda, Queensland. Jungle.

Type: No. Hy 1562, Queensland Museum.

GENUS CAMPTOPTERA Foerster.

1. CAMPTOPTERA GREGI Girault. Female.

Differs from the single North American and European species in having the first funicle joint abruptly shorter than the second, not long and nearly subequal to the second as in those two species but less than half its length and distinctly shorter than the pedicel. The abdomen is paler.

Habitat: Nelson (Cairns), Queensland. Forest.

Type: No. Hy 1343, Queensland Museum.

GONATOCERINI.

GENUS COSMOCOMOIDEA Howard.

This genus has 5-jointed tarsi and agrees with *Ooctonus* Haliday but the long marginal vein is not mentioned as a characteristic of the latter genus. Besides, the males of *Cosmocomoidea* have 11-jointed antennæ.

* See Vol. I, Memoirs of the Queensland Museum, pp. 117-175.

1. **COSMOCOMOIDEA RENANI** Girault. Male and female.

Differs from the type of the genus, the North American *morrilli* Howard, in being black, the flagellum uniformly black, the wings more conspicuously and differently fumated, larger size, in having joints 4 and 5 of the funicle longest and in lacking a distinct abdominal petiole, the abdomen merely tapering at base. The male has 13-jointed antennæ and resembles the female in coloration. A large mesopræscutum is *not* present.

Habitat: Nelson (Cairns), Queensland. Forest.

Type: No. Hy 1563, Queensland Museum.

Differs in the female from *Cosmocomoidea* Howard in bearing a subsessile abdomen and in the male by bearing 13-jointed antennæ. The longer marginal vein differentiates it from *Gonatocerus* Nees and the sessile abdomen from *Ooctonus* Haliday and also probably the long marginal vein. The scutum has a median groove.

2. **COSMOCOMOIDEA GROTIUSI** (new species).*

Female:—Length, 2.00 mm.

Similar to *renani* but the ovipositor is slightly exerted and the fore wings differ in pattern; thus the first band under the marginal vein is distinct, the second band is also more distinct, black and midway between apex of venation and apex of blade; the third is absent, thus the distal part of the blade is clear; the wings are also smaller and less densely ciliate. The scape has a broad yellow band across it, the first three funicle joints are silvery white on one distal corner, the three shortest and not much unequal.

Male:—Not known.

Dedicated to Hugo Grotius.

Described from one female captured July 4, 1913, by sweeping in forest (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. Hy 1564, Queensland Museum, the above specimen on a slide.

This species doubtfully belongs here but unfortunately I neglected to examine the thorax before mounting it in balsam. *Gonatocerus saintpierrei*, *spinozai*, *bicolor* and *mirissimus* also doubtfully belong here, especially the first and last. A mesopræscutum was thought to be present. All are *Gonatocerus*.

* This and following specimens magnified with $\frac{3}{8}$ -inch objective, 1-inch optic, Bausch and Lomb.

GENUS ALAPTUS Haliday.

Synonym: *Parvulinus* Mercet.

1. ALAPTUS ANIMUS Girault. Female.

Closest to *newtoni* Girault from which it may be distinguished by the longer antennal club which is subequal to the funicle in length and the darker body coloration, the pale funicle contrasting with the dark club.

Habitat: Nelson (Cairns), Queensland. Forest.

Type: No. Hy 1289, Queensland Museum.

2. ALAPTUS MACCABEI Girault. Female.

Alaptus immaturus Perkins, *partim*, in Girault, *ante*, 1912.

Like *immaturus* Perkins but the body much darker and the line of ciliation on the disc of the fore wing is much longer, extending from apex proximad to venation. It may be merely a variety of *immaturus*.

Habitat: Nelson and Herberton, Queensland. Forest.

Type: No. Hy 1290, Queensland Museum.

GENUS AGONATOCERUS Girault.

Differs from *Gonatocerus* Nees in being very small and in bearing 13-jointed antennæ, the funicle 10-jointed. The scutum has a median grooved line. Female. Type, the following species.

1. AGONATOCERUS HUMBOLDTI Girault. Female. Genotype.

Dusky brown, the base of abdomen golden yellow, the wings hyaline; antennæ and legs somewhat darker, the basal half of scape pallid. No discal cilia under venation of fore wing.

Habitat: Nelson (Cairns), Queensland. Forest.

Type: No. Hy 1565, Queensland Museum.

GENUS GONATOCEROIDES Girault.

Published as a subgenus of *Gonatocerus* Nees, but now considered as a genus. Differs from *Gonatocerus* in bearing 10-jointed antennæ. Type, the following species.

1. GONATOCEROIDES AUSTRALICA Girault. Female. Genotype.

Dusky brown, knees, basal three joints of tarsi, first femora and tibiæ pale yellowish. Wings hyaline. Fore wings broad, bearing about thirty-three lines of fine discal cilia. Fourth funicle joint longest, the third joint decidedly longer than either joints 1 or 2, nearly as long as the pedicel. First femora dusky beneath proximad.

Habitat: Ayr, Queensland. Forest.

Type: No. Hy 1273, Queensland Museum.

GENUS GONATOCERUS Nees.*

1. GONATOCERUS COMPTEI Girault.

Fresh specimens of this species show a large arrow-shaped fuscous spot in the lateral aspect of the abdomen at distal half. The dark markings are variable.

Proserpine, Queensland, November, 1912, by sweeping grass in forest. Males. Also at Quingilli in September, same conditions.

2. GONATOCERUS SPINOZAI Girault. Male.

Similar to the female but the abdomen transversely striped dorsad with six black stripes, the propodeum purplish black. Funicle joints 2-4 and 9-10 subequal, longest, each about thrice longer than wide, joint 8 being shortest. Antennæ 13-jointed.

Habitat: Nelson (Cairns). Queensland. Forest.

3. GONATOCERUS AUSTRALIENSIS (Perkins). Male and female.

Ooctonus australiensis Perkins, 1905, pp. 191, 193, 194, 195, pl. xiii, fig. 2 (lowest two figs.).

Gonatocerus australiensis (Perkins), 1912, p. 20.

Differs from all the species known to me from Australia, all of the species so far described, in having varicoloured antennæ in the female, joints 5-7 being white; the first funicle joint is longer than the pedicel; black. The thorax of this species should be carefully examined since the species has the facies somewhat of *Cosmocomoidea*.

4. GONATOCERUS AYRENSIS Girault. Female.

Golden yellow, head dusky, tip of abdomen, and a narrow transverse band before it, black. Funicle and club black, all funicle joints long except the first and last, the first two-thirds the length of the slender second joint. Close to *baconi* Girault but the proximal tarsal joints are longer, the thorax is all yellow and the first two pairs of legs are lighter.

Habitat: Ayr, Queensland. Forest.

Type: No. Hy 1275, Queensland Museum.

5. GONATOCERUS NOX Girault. Female.

Similar to *cingulatus* Perkins but the whole body uniformly sooty brownish, nearly black, coloured like most species of *Anaphoidea*. Also the fourth funicle joint is distinctly longer than the third.

Habitat: Ayr, Queensland. Forest.

Type: No. Hy 1276, Queensland Museum.

* *Cosmocomoidea renani* and *C. grotiusi* belong here.

6. GONATOCERUS FULGOR Girault. Male.

Like *brunoi* but the fore wings somewhat broader, not so regularly rounded at apex, the discal ciliation noticeably denser (finer and shorter) and there are about thirty-three lines; the funicle joints are shorter, the proximal ones barely twice longer than wide; the legs are darker.

Habitat: Ayr, Queensland. Forest.

Type: No. Hy 1277, Queensland Museum.

7. GONATOCERUS BICOLOR Girault.

Black, the abdomen orange reddish; scape and pedicel lemon yellow, also all of legs except the fuscous tibiae. First funicle joint longer than the pedicel or joint 2 of the funicle, subequal to joint 3. With the facies of *Cosmocomoidea* and thus the thorax should be examined for a mesopraesutum.

Habitat: Nelson (Cairns), Queensland.

Type: No. Hy 1293, Queensland Museum.

8. GONATOCERUS FASCIATIVENTRIS Girault. Male.

Differs from *goethei* Girault in coloration and in bearing broader fore wings. Yellow, the abdomen with six black stripes across dorsum. Fore wings of the broader type. Funicle joints only about one and a half times longer than wide.

Habitat: Nelson (Cairns), Queensland.

Type: No. Hy 1294, Queensland Museum.

9. GONATOCERUS BRUNOI LYELLI Girault. Male.

Like the typical forms but the abdomen above at distal third distinctly banded with narrow golden yellow stripes, the wings very dark.

Habitat: Nelson (Cairns), Queensland.

Type: No. Hy 1295, Queensland Museum.

10. GONATOCERUS DIES Girault. Female.

Jet black. Face, parts of scutum and the knees obscure golden yellow. Wings hyaline, broad. Base of abdomen more or less obscurely yellow. Like *helmholtzii* but the fore wings are noticeably less densely ciliate, the ciliation coarser and the ovipositor is plainly exerted for a length equal to a fourth that of the abdomen.

Habitat: Capeville (Pentland), Queensland. Forest.

Type: No. Hy 1566, Queensland Museum.

11. GONATOCERUS SAINTPIERREI Girault. Male.

Very large and with the facies of *Cosmocomoidea*. Jet black. Fore wings with a midlongitudinal, subcylindrical fuscous stripe from near apex proximad a little more than half way to the marginal vein. Fore wings broad.

Habitat: Kuranda, Queensland. Jungle.

Type: No. Hy 1567, Queensland Museum.

12. GONATOCERUS LOMONOSOFFI Girault. Female.

Jet black and like *nox* but smaller, the fore wings of the broader type yet not wide, the antennæ with the first three funicle joints short and subequal, the fourth only a little longer while the fifth is plainly twice longer than the third. Discal cilia absent under the marginal vein or nearly.

Habitat: Kuranda, Queensland.

Type: No. Hy 1568, Queensland Museum.

13. GONATOCERUS MIRISSIMUS new species.

Female:—Length, 2.25 mm. Very large for the family. Black, the abdomen red and thus coloured like *bicolor* from which it differs in bearing a conspicuous black, uniform, longitudinal stripe down the middle of the wing from apex a little more than half way to apex of the venation. Thus also allied with *saintpierrei* Girault but the stripe on the fore wing of the latter very much fainter and narrower, its outlines obscure. Structurally very similar to *bicolor*. Like *saintpierrei* in wings and legs (structure). Legs rich brown, the cephalic coxæ black.

Male:—Not known.

From one female captured by sweeping in jungle, June 14, 1913 (A. P. Dodd). Several days later, June 16, another female was captured in the same place; in this specimen the dorsum of the abdomen and its tip were black.

Habitat: Nelson (Cairns), Queensland.

Type: No. Hy 1569, Queensland Museum, the above specimen on a slide with the type of *Gonatocerus saintpierrei* Girault.

14. GONATOCERUS TRICOLOR new species.

Male:—Length, about 1.50 mm. Large for the family. Black, the abdomen and scape orange yellow and thus like *bicolor* but the fore wings are distinctly broader, equal to those of *saintpierrei*; besides the orange abdomen this species differs from *saintpierrei* in having the fumation of the wings spread all over the blade distad of the venation excepting the caudal and cephalic margins which are clear two thirds the way to apex from the distal end of the marginal vein. Parapsidal furrows complete; *mesopræscutum* apparently absent; scutellum long as the scutum, flattened. Joints of antennal funicle at least twice longer than wide.

Described from one male specimen captured by sweeping along a damp creek, grass, in forest, July 8, 1913 (A. P. Dodd). Respectfully dedicated to Hugo Grotius.

Habitat: Nelson (Cairns), Queensland.

Type: No. Hy 1570, Queensland Museum, a fore wing on a slide with the type of *Gonatocerus bicolor*.

The single specimen of this species, unfortunately, was lost, only a wing being saved.

15. GONATOCERUS POINCAREI new species.

Female:—Length, 2.00 mm.

Like *mirissimus* Girault but scape, pedicel and legs (excepting front coxæ), yellow, the abdomen wholly black, the distinct, wide midlongitudinal black stripe of distal fore wing shorter, that is not proceeding to apex but fading distinctly some distance before; also in the middle of the blade farther proximad there is a more or less distinct fuscous spot only narrowly connected with the black stripe (in *mirissimus* broadly connected and not forming a more or less distinct spot); also the funicle joints are distinctly longer, the distal joint longer than wide, joints 2 and 3 longest and distinctly over twice longer than wide (in *mirissimus* the distal joint is quadrate while joints 2 and 3 are distinctly not twice longer than wide). The yellow parts change to orange in balsam.

Male:—Not known.

Described from one female captured by sweeping in jungle, July 13, 1913. Respectfully dedicated to Jules Henri Poincaré.

Habitat: Harvey's Creek (Cairns District), Queensland.

Type: No. Hy 1571, Queensland Museum, the above specimen on a slide with the type of *Gonatocerus lomonosoffi* Girault.

16. GONATOCERUS MERCES new species.

Female:—Length, 0.80 mm.

Golden yellow marked with jet black as follows: A flat, hemispherical marking at caudal margin of pronotum across middle, all of scutum except lateral and caudal margins, a large diamond-shaped area on the parapside (nearly joining the next), a smaller triangular area in the vicinity of the axillæ (laterad of the cephalic scutellum), the propodeum, a line from one lateral ocellus to the other, three areas on the occiput, cephalic aspect of the head and distal half of abdomen above and hind tibiae. Legs pale yellow. A pattern of black spots on cephalic vertex. Distal two tarsal joints black. Antennæ missing. Fore wings hyaline, moderate in width, with about 17 lines of cilia. Marginal cilia about a fourth the greatest wing width.

Described from one female captured by sweeping in jungle pocket, July 24, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. Hy 1572, Queensland Museum, the above female on a slide with the type of *Gonatocerus metschnikoffi*.

17. GONATOCERUS MAZZININI new species.

Female:—Length, 1.50 mm.

Black, densely reticulated, the wings hyaline; mesopræscutum absent; parapsidal furrows and thorax normal; belongs to the *spinozai* group and is characterised by the coloration and the antennal structure, the funicle joints being more or less subquadrate but the first like a large ring-joint, distinctly smaller than any of the others, joints 4 and 5 longest, each a little longer than wide, the others subquadrate and more or less subequal to the pedicel; scape compressed, dilated ventrad, golden yellow along the middle of each side. Wings like those of *bicolor*. Legs pale lemon yellow except the more or less coloured coxæ and the embrowned second and third tibiæ; abdomen above at base with slight yellowish, with a distinct but short petiole as in *saintpierrei*; ovipositor not exerted. Club over half the length of the funicle.

Male:—Not known.

Described from one female captured December 24, 1911, by sweeping floor of forest, top of east range of mountains opposite Double Island (about 1,000 feet).

Habitat: Cairns (Double Island, mainland), Queensland.

Type: No. Hy 1573, Queensland Museum, the above specimen on a slide.

Respectfully dedicated to Giuseppe Mazzini for his essays, more especially for his "The Duties of Man."

18. GONATOCERUS CARLYLEI new species.

Female:—Length, 1.25 mm.

About the same as *dies* but larger, the median line of scutum and the lateral margins of same narrowly and lateral margins of scutellum, golden yellow; otherwise as in *dies* except the hind femur is pallid, the hind tibiæ with a pallid band around them just proximad of middle. Ovipositor plainly exerted for a length equal to a third that of the abdomen (or somewhat less). Proximal third of abdomen plainly yellow.

Male:—Not known.

Described from one female captured by sweeping in the forest, August 23, 1913 (A. P. Dodd). Dedicated to Thomas Carlyle.

Habitat: Nelson (Cairns), Queensland.

Type: No. Hy 1574, Queensland Museum, the above specimen on a slide.

ANAPHINI.

GENUS ANAGRUS Haliday.

1. **ANAGRUS ARMATUS AUSTRALIENSIS** Girault.

Proserpine, Queensland, November 4, 1912, a female from a window.

GENUS STETHYNIUM Enoek.

1. **STETHYNIUM LATIPENNE** Girault. Male.

Robust for the genus. Differs from all the Australian species in bearing very broad wings, which bear at their widest part about thirty lines of fine discal cilia. From *peregrinum* it differs in general coloration and in bearing a thoracic median suleus. Lemon yellowish marked with deep black. Hind wings with about six lines of discal cilia at apex, the longest marginal cilia of fore wing somewhat over half the greatest width of those wings.

Habitat: Proserpine, Queensland.

Type: No. Hy 1274, Queensland Museum.

GENUS PARANAPHOIDEA Girault.

Like *Anaphoidca* Girault but the ovipositor plainly exerted for half the length of the abdomen. Hind wings broad, bearing about seven lines of discal ciliation. Mesopostscutellum as long as the scutum. Venation as in *Stethynium*. Cephalic tibial spur not forming a strigil. Type, the following species.

1. **PARANAPHOIDEA EGREGIA** Girault. Female. Genotype.

Black, with a golden yellow pattern; mesopostscutellum golden yellow excepting a prominent, elliptical black marking on each side of the median line and an oblique dash laterad; scutum at caudal margin golden yellow and mesad with a U-shaped golden yellow marking; face yellow; a slender golden yellow line on the vertex runs across the cephalic ocellus from eye to eye, laterad widening caudad and cephalad, leaving in the centre of the vertex two subrectangular areas, before and behind the cephalic ocellus; margin of axillæ yellow and lateral portions of each parapside, irregularly. Distal club joint much longer than proximal.

Habitat: Nelson (Cairns), Queensland.

Type: No. Hy 1291, Queensland Museum.

2. **PARANAPHOIDEA PONDEROSA** new species.

Female.—Length, 1.30 mm., excluding the ovipositor which is exerted for half the length of the abdomen or more.

At once distinguished from the type species in being twice larger, in having the cephalic tibial spur forming a strigil, the first funicle joint distinctly longer

than the pedicel and the different coloration, only the laterocaudal angle of pronotum, the lateral and caudal margins of the scutum and the median line of the latter being bright lemon yellow. Hind femora swollen, the front ones less so, the legs pale yellow. Funicle joints all cylindrical, 2-4 longest but not much longer than any of the others.

Male:—Not known.

Described from one female captured by sweeping in forest, August 12, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. Hy 1575, Queensland Museum, the above specimen on a slide.

GENUS POLYNEMOIDEA Girault.

Habitus of *Polynema*; venation and wings of *Cosmocomoidea* but the marginal fringes are long; antennæ of *Polynema* but the club is indistinctly 3-jointed; tarsi 4-jointed; abdomen subsessile, no distinct petiole, no phragma, the ovipositor very long, slender, exerted for a length equal to more than that of the abdomen. Parapsidal furrows complete; scutellum rectangular, mesopost-scutellum larger than it. Propodeum still longer. Antennæ 11-jointed, the scape serrate beneath. Strigils present. Type, the following species.

1. POLYNEMOIDEA VARICORNIS Girault. Female. Genotype.

Black, the first four funicle joints of antennæ white, the legs yellowish brown. A stain along the anterior margin of fore wing around the apex and broadly across from the marginal and stigmal veins. First funicle joint much smaller than the pedicel, the next two joints very long, joint 2 a little shorter than 3 and subequal to the club in length. Sculpture fine.

Habitat: Hobart, Tasmania.

Type: No. I. 1228, South Australian Museum, Adelaide.

2. POLYNEMOIDEA LINCOLNI new species.

Female:—Length, 1.15 mm. Ovipositor not exerted.

Pale brownish yellow, the head, cephalic third of thorax (along pro- and mesonotum) and distal eight antennal segments, black. Fore wings dusky out as far as the apex of the venation and distad more or less obscurely along each margin. Abdomen dusky yellowish. Second funicle joint longest, more or less equal to the pedicel. Mesopostscutellum with a sclerite back of it much like the postscutellum of a normal scutellum. Otherwise about as in *varicornis* but the marginal fringes of the fore wing are much shorter. Mandibles bidentate.

Male:—Not known.

Described from one female specimen captured by sweeping in jungle, July 10, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. Hy 1576, Queensland Museum, the above specimen on a slide with the type of *Anaphes saintpierrei*.

Dedicated to the life of Abraham Lincoln.

GENUS ANAPHES Haliday.

1. ANAPHES SAINTPIERREI new species.

Female:—Length, 0.60 mm.

Jet black, the antennæ and legs sooty, the wings greyish black throughout. Fore wings very narrow, curved and acute at apex, bearing only about six lines of discal cilia, the very long marginal cilia over twice the greatest wing width. First two pairs of legs suffused with yellowish. Parapsidal furrows complete, the scutellum very large, occupying over half of the thorax. Sculpture fine. Hind wings without midlongitudinal cilia. Strigils present. Funicle joints 3-6 subequal and longest, each nearly twice longer than 2, joint 1 very short. A clear spot in middle of fore wing a little distad of venation. Mandibles acutely bidentate.

Like the North American *sinipennis* Girault with which I have compared it but the fore wings still distinctly narrower and in *sinipennis* the second funicle joint is a little the longest. Characterised by the fore wings.

Male:—Unknown.

Described from a single female captured from the panes of a window in a hotel, July 13, 1913.

Habitat: Harvey's Creek (Cairns), Queensland.

Type: No. Hy 1577, Queensland Museum, the above specimen on a slide with the type female of *Polynemoides lincolni*.

Respectfully dedicated to L'Abbé Saintpierre.

2. ANAPHES SPINOZAI new species.

Male:—Length, 1.00 mm. Slender.

Black, the abdomen yellowish at proximal third, the legs, scape and pedicel pale yellow, the funicle and club greyish black. At once characterised by the ciliation of the fore wing which is nearly all gathered on the cephalo-distal corner of the blade where it is rather densely arranged in about from seven to eight lines; on the opposite side near the caudal margin is a straggling line; elsewhere the blade is practically naked excepting at extreme apex, since the cephalo-distal patch of ciliation extends a short way around the distal margin; fore wing uniformly slightly infumated (cloudy greyish) but distinctly sooty along the

distal or apical margin. Longest marginal cilia of fore wing not quite as long as the greatest width of the blade. Joints of funicle about thrice longer than wide, joint 1 paler; 12 antennal joints but one other certainly missing in the specimen (one antenna half missing, the other with 12 joints present and at least one other missing). Genitalia exerted. Strigil present.

Female.—Not known.

Described from one male specimen captured by sweeping miscellaneous vegetation in the town and adjoining country, February 26, 1913.

Habitat: Halifax, Queensland.

Type: No. Hy 1578, Queensland Museum, the above specimen on a slide.

MYMARINI.

GENUS MYMAR Haliday.

1. MYMAR TYNDALLI Girault.

A female at Proserpine, Queensland, November, 1912, sweeping near a small pond in semi-cultivated field.

Male.—The same as the female. Antennæ slender, the funicle joints all elongate and subequal but the first joint and the club slightly shorter, each of the funicle joints about two and three quarter times the length of the pedicel.

Described from one specimen captured by sweeping in forest August 7, 1913 (A. P. Dodd), at Nelson, Queensland.

GENUS POLYNEMA Haliday.

1. POLYNEMA DEVRIESI Girault. Male.

Similar to *draperi* and *romanesi* but differing from both in bearing much coarser discal cilia on the fore wing and in being ferruginous, the distal third of the abdomen black.

Habitat: Nelson (Cairns), Queensland.

Type: No. Hy 1296, Queensland Museum.

2. POLYNEMA MENDELI Girault. Male, female.

Like *devriesi* but the discal ciliation of the fore wing finer, the marginal cilia shorter, not quite as long as the greatest width of the blade. Ferruginous, the abdomen black. First funicle joint much shorter than the second. The female has a very long, exerted ovipositor and two grooves on the scutellum.

Habitat: Nelson (Cairns), Queensland.

Type: No. Hy 1297, Queensland Museum. Male.

3. POLYNEMA NORDAUI Girault. Female.

Black; first three antennal joints, abdominal petiole, legs except distal half of hind femur and distal tarsal joints, orange yellow. Like *longipes* but the antennae different, joints 2 and 3 of funicle being long and subequal. Nearly like *draperi* in wings but the legs are orange, brighter. Possibly the female of *draperi* but most probably quite distinct.

Habitat: Nelson and Meerawa (Cairns), Queensland.

Type: No. Hy 1298, Queensland Museum.

A female of this species was captured by sweeping in jungle at Meerawa, Queensland, July 26, 1913 and another in a similar habitat at Nelson, July 30 following.

4. POLYNEMA AUSTRALIENSE Girault. Female.

Like *spenceri* but the funicle joints are longer; joint 1 of funicle is distinctly shorter than 3 while joint 2 is six or more times longer than wide; joint 4 is distinctly longer than either 5 or 6.

Habitat: Capeville (Pentland), Queensland.

Type: No. Hy 1579, Queensland Museum.

5. POLYNEMA PAX Girault. Female.

Like *spenceri* but the second joint of funicle plainly over twice the length of the pedicel and the discal ciliation of the fore wing does not disappear proximad. Legs and petiole dusky brown; joints 2-4 of funicle dusky yellow. A female of this species was captured at Nelson, June 9, 1913, walking over the foliage of *Tristania* (A. P. Dodd).

Habitat: Kuranda (type) and Nelson, Queensland.

Type: No. Hy 1580, Queensland Museum.

6. POLYNEMA POINCAREI Girault. Female.

Dark brown, the abdomen and scape black, also the two distal joints of antenna. Fore wings with two jet-black bands across them, the distal one covering the distal fifth of the wing. First funicle joint longer than the scape, the second joint extraordinarily lengthened, subequal to the third which is about twice the length of the first.

Habitat: Nelson (Cairns), Queensland.

Type: No. Hy 1581, Queensland Museum.

On July 30, Mr. A. P. Dodd caught a third female of this extraordinary species by sweeping in a jungle pocket near Nelson.

7. POLYNEMA ROUSSEAU Girault. Female.

Like *siboldi* Girault but the third funicle joint is subequal to the second and the hind femur is black at distal half, the second tibia with a dusky ring just before tip. Also the large spot on the fore wing is blacker and somewhat farther distad. The second funicle joint is black, the distal three joints of the funicle decidedly shorter, each shorter than joint 1. Also, the fore wings bear a disto-cephalic marginal spot.

Habitat: Nelson (Cairns), Queensland.

Type: No. Hy 1582, Queensland Museum.

8. POLYNEMA FRANKLINI Girault. Female.

Like *siboldi* but the spot on the fore wing darker, the coxæ and petiole orange yellow like rest of the legs; also the distal three funicle joints are as in *rousseaui* from which this species differs in the coloration of the legs.

Habitat: Nelson (Cairns), Queensland.

Type: No. Hy 1583, Queensland Museum.

9. POLYNEMA ZOLAI Girault. Male.

Jet black, the wings hyaline. Characterised by the broad fore wings, the longest marginal fringes of which are only about a sixth the greatest wing width. There are only about twelve lines of discal eilia, these latter sparse and practically absent over the proximal half of the blade which is about two and a quarter times longer than broad. A very minute ring-joint is present.

Habitat: Kuranda, Queensland.

Type: No. Hy 1584, Queensland Museum.

10. POLYNEMA SPECIOSISSIMUM Girault. Female.

Black, the head, pronotum and mesonotum reddish brown; petiole, coxæ, trochanters, first femora and basal half of all tibiæ, silvery white; tarsi, seape and pedicel reddish brown, joints 4 and 5 of funicle white. Fore wings marked somewhat as in *franklini*, but the cross band is very intense jet black and much longer. Joint 1 of funicle two-thirds the length of the second, which is subequal to the third, all three elongate.

Habitat: Nelson (Cairns), Queensland.

Type: No. Hy 1585, Queensland Museum.

11. POLYNEMA SAPPHO new species.

Female:—Length, 1.00 mm.

Black, the pedicel, first funicle joint (more or less), tibiæ (except distal two thirds of hind tibiæ), petiole, tarsi except distal joint, coxæ except cephalic ones and trochanters yellowish. Differing from nearly all Australian species

of the genus so far known by bearing, besides a transverse blackish stripe across somewhat distad of the middle (much over its own length from the venation, the stripe subquadrate and faded along the cephalic margin, brown not jet black), on the fore wing an ovate dusky spot distad in the cephalo-distal corner of the blade. Discal cilia rather sparse, absent under the venation and for some distance distad from it (out as far as the cross band); longest marginal cilia equal to two thirds the greatest wing width. First funicle joint a little longer than the pedicel, a little over half the length of the second which is longest, the third a fourth shorter than the second, the sixth shortest, ovate, the fourth a little shorter than the first, a little longer than the fifth. Scape simple.

Male:—Not known.

Described from one female captured by sweeping jungle growths along a forest streamlet, June 18, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1586*, Queensland Museum, the above specimen on a slide with the type of *Polynema speciosissimum* Girault.

This species is closely allied with *rousseaui* Girault which also has the distocephalic spot on the fore wing; however; in that species the second and third funicle joints are of equal length, the fore wings wider (about sixteen lines of cilia, only about eleven here) and the first funicle joint is longer in *rousseaui*. Also, in the latter, the scape, pedicel and first funicle joint are all uniform in color.

12. POLYNEMA NOTABILISSIMUM new species.

Female:—Length, 1.50 mm. Large and striking.

Like *poincarci*, that is the wings with two jet-black bands, but differing as follows: Firstly, it is jet black, only the pedicel and first two funicle joints of the antenna and the legs (except coxæ and distal tarsal joints) are orange yellow. Secondly, the appendages are less slender; in the antennæ the first three funicle joints are not so long and the third is longest, distinctly longer than the second, which, however, is long; the club is normal, that is large and ovate, the distal funicle joint not apparently a part of it and much narrower than it; also the distal three funicle joints are much shorter, the distal joint shortest, subequal to the pedicel. The extraordinarily lengthened proximal tarsal joints in *poincarci* are replaced here by still long ones but not half as long as those of the species named. In the fore wings the pattern differs in that the clear band between the two black bands is not subequal to the length of the distal band as in *poincarci* but narrow and only about a third the length of that band and distinctly less than the length of the proximal band (distinctly longer than it is in *poincarci*). Abdominal petiole pale yellowish. The species less robust than *poincarci*, the wings shorter and not so broad. Third and fourth funicle joints only dusky, the other joints distad black.

Male:—Not known.

Described from one female captured by sweeping in jungle, June 10, 1913 (A. P. Dodd).

Habitat: Little Mulgrave River near Nelson (Cairns), Queensland.

Type: No. *Hy* 1587, Queensland Museum, the above specimen on a slide with *Polynema poincarci* Girault.

13. POLYNEMA GROTIUSI new species.

Female:—Length, 2.90 mm., exclusive of ovipositor which is exerted for a length equal to nearly half that of the abdomen.

Polished black, the line of foveæ near apex of scutellum present; pronotum as long as the scutum which bears complete parapsidal furrows. Over distal half of petiole silvery white. Scape, pedicel, joints 1, 4, and 5 of funicle, much of first femora, knees and the tarsi yellowish or reddish brown. Club about twice the length of the distal joint of the funicle, the joints of the latter elongate, 2 and 3 subequal, longest, each somewhat over twice the length of joint 6; joint 1 a little longer than joint 4 which is slightly shorter than the club, a third shorter than 3. Fore wings very broad, with about thirty-four lines of discal cilia, their marginal cilia short, the longest only about an eighth of the greatest wing width. Fore wings darkened distad of the venation.

Male:—Not known.

Described from one female captured by sweeping the foliage along a jungle path, July 13, 1913.

Habitat: Harvey's Creek, Cairns District, Queensland.

Type: No. *Hy* 1588, Queensland Museum, the above specimen on a slide.

14. POLYNEMA DARWINI new species.

Female:—Length, 1.20 mm.

At once distinguished by the fore wings which are hyaline but with a distinct disto-ephalic spot; this spot is larger and more distinct than the one in *rousseaui* or *sappho* and round. Black, polished, the foveate line across the long scutellum obscure, made of fine, scattered punctures. Legs black, knees, front tibiae and all tarsi whitish. Scape, pedicel (except above) and first funicle joint pallid, the following one or two joints dusky pallid, the club and last two funicle joints black; funicle 4 distinctly longer than 5 or 6, slightly shorter than 1; joints 2 and 3 of funicle nearly equal, long, 2 a little the longer, about a third longer than 1 which exceeds the length of the pedicel. Fore wings with about 12-14 lines of discal cilia, their longest marginal cilia somewhat over two thirds the greatest wing width. Scape simple.

Male:—Not known.

Described from a single female captured by sweeping forest growths, November 3, 1912.

Habitat: Proserpine, Queensland.

Type: No. *Hy 1589*, Queensland Museum, the above specimen on a slide with the type female of *P. grotiusi* Girault.

Dedicated to Charles Darwin.

15. POLYNEMA HAECKELI new species.

Male:—Length, 1.50 mm.

Like *franklini* and *siboldi* but differing in that the stripe across the fore wing is deeper than in the former and the hind femora and tibiae black, the intermediate tibiae dusky. Legs otherwise orange yellow. Scape and pedicel dusky pallid, the rest of the antenna black. Funicle joints over thrice the length of the pedicel, thus longer than with the specimen described as the male of *siboldi* (which has the hind femur blackish at tip).

Female:—Not known.

Described from one male captured by sweeping jungle in a gorge, July 26, 1913.

Dedicated to Ernst Haeckel.

Habitat: Meerawa (Cairns), Queensland.

Type: No. *Hy 1590*, Queensland Museum, the above specimen on a slide with the type of *lodgei*, described next.

16. POLYNEMA LODGEI new species.

Female:—Length, 2.00 mm.

Black, the legs brown, black at tip of hind tibiae; pedicel and joints 1, 4 and 5 of funicle yellowish, the scape darker, joints 2 and 3 of funicle brownish black, joint 6 and the club jet black. Of the build of *grotiusi* but at once distinguished from all the species of the genus in bearing fore wings like those of *Gonatocerus mirissimus* Girault but the broad, longitudinal black stripe does not extend half way to the venation. Discal ciliation arranged in about from 28-30 lines, disappearing some distance out from the venation, the longest marginal cilia short, only about a fifth or sixth the greatest wing width. Second funicle joint longest, a fourth or more longer (that is distinctly longer) than the third, the first distinctly longer than any of the three distal funicle joints, longer than the pedicel, a little over half the length of the second joint.

Male:—Not known.

Described from one female captured by sweeping in jungle bordering a stream in forest country gradually verging to jungle, July 26, 1913.

Habitat: Meerawa (Cairns), Queensland.

Type: No. Hy 1591, Queensland Museum, the above specimen on a slide with the type of *haeckeli*.

This truly remarkable species, a striking example of the development of a similar wing pattern in unrelated genera, is respectfully dedicated to Sir Oliver W. Lodge for his part in the development of a difficult part of human psychology, namely, that relating to telepathy and prevision.

17. POLYNEMA FRATER new species.

Male:—Length, 0.60 mm.

Exactly like *draperi* Girault but the fore wings like those of *nordawi*; also on the scutellum there is a pair of setigerous spots at proximal third or so which are closer together than are the straight parapsidal furrows at apex; in *draperi*, a similar pair is as far apart as the curved furrows are at apex (caudal margin of scutum); in *nordawi*, the hind femur is black distad but more than this *nordawi* seems to differ in that there is a pair of minute setigerous dots at cephalic margin of scutellum at the meson which nearly touch each other. (Antennae missing.)

Described from one male taken by sweeping grass and sedges in a boggy meadow inhabited by *Pandanus*, July 17, 1912.

Female:—The same. Second funicle joint much the longest, a third longer than joint 3, while 4 is very short, subequal to 1, distinctly shorter than 5 or 6 which are distinctly shorter than 3 and the pedicel.

From one specimen captured in the forest at Nelson, August 12, 1913 (A. P. Dodd).

Habitat: Ingham and Nelson, Queensland.

Type: No. Hy 1592, Queensland Museum, the above specimen on a slide with a female of *P. pax* Girault; a female with the type of *zolai*.

18. POLYNEMA MENDELEEFI new species.

Male:—Length, 1.40 mm.

Exactly similar to *zolai* but somewhat more robust and differing in the structure of the fore wings. Thus in this species these organs are more densely ciliate bearing about 20-22 lines of discal cilia, the latter are distinct (indistinct in *zolai*) and normal and extend plainly farther proximad, in fact three fourths the way from apex to venation (only about half way in *zolai*); also the marginal cilia of the fore wing are longer, somewhat more (the longest) than a fifth the greatest wing width. Cephalic tibiae yellow.

Female:—Not known.

Described from a single male specimen captured by sweeping foliage in a jungle pocket, July 30, 1913 (A. P. Dodd).

Respectfully dedicated to the Russian chemist who propounded the periodic law in chemistry.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy* 1593, Queensland Museum, the above specimen on a slide with two other species of the same genus.

19. POLYNEMA ZANGWILLI new species.

Male:—Length, 1.30 mm.

Like *zalai* but the scape and pedicel yellowish, the legs orange yellow, except hind legs which are brownish; also the fore wings bear longer marginal cilia, the longest of which are plainly half the greatest width of the blade while the latter bears at least twenty lines of discal cilia, the latter tolerably dense and uniform. The line of foveæ across scutellum absent.

Female:—Not known.

Described from one male captured by sweeping in forest, December 2, 1912.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy* 1594, Queensland Museum, the above specimen on a slide.

DIAGNOSTIC ARRANGEMENT OF THE AUSTRALIAN SPECIES OF *POLYNEMA* HALIDAY.

MALES AND FEMALES.

I. Fore wings hyaline but more or less patterned, either with an extraordinarily conspicuous black or brown cross stripe, or two such stripes, or else with a dusky cross stripe, or a cross stripe and a spot or simply a disto-cephalic spot; or else there is a broad black longitudinal stripe from the apex.

1. Fore wings extraordinarily striped with broad fuscous or jet black; large, appendages elongate.

Fore wing with only one conspicuous broad black stripe across it; antennæ ringed with white.

Black; head, pro- and mesonotum reddish brown; petiole, coxæ, trochanters, front femora, proximal half of all tibiæ, silvery white; tarsi, scape and pedicel reddish brown; joints 4 and 5 of funicle white. Joint 1 of funicle two thirds the length of joint 2, which is subequal to 3, all three elongate *speciosissimum* Girault.

Fore wing with two conspicuous broad black stripes across it; antennæ not ringed with white.

- Reddish brown, the scape, two distal antennal joints and abdomen black; joint 1 of funicle longer than the scape, joint 2 extraordinarily lengthened, twice the length of 1, subequal to 3. Distal funicle joint as wide as the club and two thirds its length; space between wing stripes distinctly longer than the proximal stripe *poincarei* Girault
- Black; pedicel and first two funicle joints and the legs orange yellow; joint 3 of funicle longer than joint 2; distal funicle joint not as wide as the club, not apparently a part of it; space between wing stripes narrow, distinctly shorter than the proximal stripe *notabilissimum* Girault
2. Fore wings hyaline but with an inconspicuous dusky stripe or a stripe and a spot; usual in size, the appendages more normal. Fore wings with but a single large dusky spot or stripe, extending across the wing or nearly, somewhat distad of the venation. Species black, the legs mostly yellowish. Legs all yellow.
- Distal three funicle joints as long or longer than joint 1; dusky stripe of fore wing less conspicuous; petiole and coxæ pallid *sieboldi* Girault*
- Distal three funicle joints all somewhat shorter than joint 1 of funicle; stripe of fore wing darker; coxæ and petiole orange yellow *franklini* Girault
- Hind femora and tibiæ black.
- Dusky stripe of fore wing still darker (male).. .. . *haeckeli* Girault
- Fore wings the same but the stripe darker and there is a disto-cephalic marginal spot. Species black, the legs yellow or blackish.
- Legs orange yellow, the hind femora and tibiæ black (the latter along distal half); funicle joints 2 and 3 subequal; fore wings with about 16 lines of discal cilia *rousseaui* Girault
- Legs marked with dusky blackish excepting front tibiæ and all tarsi; funicle joint 3 a fourth shorter than 2; fore wings with only about 11 lines of discal cilia *sappho* Girault
3. Fore wings hyaline but there is a distinct disto-cephalic fuscous spot. Legs somewhat as in *sappho*; joints 1 and 4 subequal or nearly, 5 and 6 distinctly shorter; joints 2 and 3 subequal *darwinii* Girault
4. Fore wing with a conspicuous broad black longitudinal stripe from apex along distal third.
- Black, the legs brown, the antennæ more or less varicolored, the second funicle joint distinctly longer than the third, the first distinctly longer than 4, 5 or 6, the latter not as wide as the club and much shorter than it; marginal fringes short *lodgei* Girault
- II. Fore wings without a pattern, at most irregularly, uniformly or obscurely dusky, no distinct stripe or spot upon them, usually hyaline.

* The type male of this species has the first joint of the hind tarsus distinctly shorter and the hind femur black at tip (as regards the female type).

1. Body wholly black (excluding appendages).

Fore wings narrower, their longest marginal cilia plainly as long as their greatest width or at least over half their greatest width.

Fore wings with only about 11-12 lines of discal cilia; marginal cilia as long as the greatest width of the wing.

Legs uniformly pale yellow; parapsidal furrows curved; cephalic pair of setigerous spots on scutellum as far apart as the furrows at apex *draperi* Girault

The same, but wings less uniformly ciliate and as in *nordawi*; cephalic pair of setigerous spots of scutellum closer together than the parapsidal furrows at apex *frater* Girault

Legs orange yellow, the distal half of hind femur black *nordawi* Girault

Fore wings with about sixteen lines of discal cilia; marginal cilia from a half to three fourths the greatest width of fore wing.

Legs orange yellow and the scape and pedicel. Fore wings moderately slender (male) *romanesi* Girault

Coxæ and femora concolorous, rest of legs pallid yellow except dusky on the tibia; ciliation of fore wing disappearing proximad; distal three joints of funicle subequal, joint 2 only about four times longer than wide. Fore wings moderately broad *spenceri* Girault

The same but joint 4 of funicle distinctly longer than joints 5 or 6; joint 2 about six times longer than wide *australiense* Girault

All legs, except tarsi, dusky brown; ciliation of fore wing not disappearing proximad; joints 2-4 of funicle dusky yellowish. Fore wings moderately broad *pax* Girault

Fore wings with about twenty lines of discal cilia, broad, the marginal cilia not more than half the greatest width. Scape not asperate.

Hind legs brownish, others orange yellow; foveate line across scutellum absent; like *zalai* in habitus (male) *zangwilli* Girault

Fore wings with about twenty-four lines of very dense and fine discal cilia; scape asperate beneath, sculptured.

Legs intense orange yellow; first funicle joint in female elongate *reduvioli* Perkins

Fore wings broader, broad or very broad, their longest marginal cilia short, not exceeding a fifth of the greatest wing width.

Fore wings broad, their marginal cilia a fifth or sixth of the greatest width.

Fore wings with only about twelve lines of discal cilia which are absent half way out from venation and scattered and indistinct distad; legs black except tarsi, knees and first tibia (male) *zalai* Girault

Fore wings with about 20-22 lines of discal cilia which are absent only a fourth the way to apex from venation, distinct and normal (male) *mendeleefi* Girault

Fore wings very large and broad, their longest marginal cilia only an eighth of the greatest width.

Fore wings with about 34 lines of discal cilia which are dense; legs black, tarsi brown; antennæ varicoloured, the funicle joints elongate; wings uniformly sooty distad of venation. Species enormous, the largest member of the family *grotiusi* Girault

The species *grotiusi* is obviously related to the first group of species.

2. Body wholly ferrugineous or yellow or partly one or the other (appendages excluded). Fore wings slender.

Thorax golden yellow, the head and abdomen black. Marginal cilia a little shorter than the greatest width of the blade.

Second funicle joint in male nearly twice the length of the first; in female, ovipositor much exerted, as long as the abdomen *mendeli* Girault

Whole body ferrugineous to golden yellow; marginal cilia somewhat longer than the greatest width of the blade.

First funicle joint in male only slightly shorter than the second, both long, as are also the next three or four joints; female not known *devriesi* Girault

GENUS EUSTOCHUS Foerster.

1. EUSTOCHUS DUBIUS new species.

Male:—Length, 1.20 mm.

Jet black, the legs brown, the coxæ and antennæ concolorous (except hind coxæ). Fore wings sooty, the fumation deepened under the marginal vein in the form of a rather broad fuscous stripe; discal ciliation absent under venation and for some distance distad, thus giving the appearance of a rather broad whitish stripe across the fore wing just distad of venation, since the hairless area distad of the brownish stripe is lighter than the ciliated area beyond; the same effect also proximad of the brownish stripe. Blade of hind wing uniformly clouded. Discal cilia of fore wing rather dense, the fore wing shaped as in species of *Gonatocerus* of the graceful type.

With the following remarkable structural characters:—Parapsidal furrows complete; scutellum larger than the scutum, divided across the middle by a distinct suture, the postsutellum deeply divided from scutellum at apex but continuing its outlines and appearing as if the scutellum bore a deep transverse suture before apex; metathorax long; second abdominal segment occupying half of the surface, segment 3 only a third shorter than it, the abdomen ovate, its petiole very short, wider than long and guarded by a spine-like prolongation on each side from the second segment of the abdomen; thorax rough, propodeum

rugose; axillæ normal, not advanced, widely separated; venation much as in *Signiphora*; hind wing petiolate, the blade long, somewhat curved and very broad for a mymarid, at apex obtusely rounded and resembling the blade of an ordinary table knife; antennæ filiform, 13-jointed, the pedicel shorter than any of the following joints which are about twice longer than it; marginal fringes of fore wing short, shorter than those of the hind wing which are distinctly shorter than the greatest width of the blade of those wings; tarsi 4-jointed; mandibles delicate, slender, distinctly bidentate, the outer tooth long. Scutellum longitudinally striate. Hind wings with about eight lines of discal cilia; a short row of about seven slender setæ under end of venation. Strigil strong. Several very long setæ from the venation.

Female:—Not known.

Described from two specimens captured by sweeping in forest, July 9, 1913 (A. P. Dodd) and by miscellaneous sweeping at Kuranda (F. P. Dodd) in June, 1913. The generic position of this species is of course not certain. It should be compared with *Anaphes* and allies.

Habitat: Nelson and Kuranda (Cairns), Queensland.

Types: No. *Hy* 1595, Queensland Museum, the above specimen on a slide.

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